

linking is complete, through the use of chemical blowing agents or, by the inclusion of inert particles such as starch particles in the liquid polyvinyl alcohol solution, which are washed from the polyvinyl alcohol structure after cross linking is complete. These foams are often referred to as PVOH or polyvinyl formal. The foams are relatively rigid when dry, but upon saturation with aqueous fluids become extremely soft and flexible. Because these foams are rigid when dry, they can be readily formed and handled.

Several properties of these foams make them particularly well suited to the application of the instant invention. First, the foam is relatively inert and is non-toxic. Second, because the foam is extremely hydrophilic, it wets quickly and serves as an excellent aqueous fluid transport medium. Unlike many other open cell foams, acetalized polyvinyl alcohol foam possesses excellent fluid transport properties and is capable of releasing fluid easily when brought into contact with another surface. Third the foam is capable of retaining almost 10 times its weight in aqueous fluids which permits the foam to quickly lay down large quantities of fluid when required. The high fluid retention property of PVOH coupled with the high degree of hydrophilicity permits the writing ability of the instant invention to actually be enhanced when used on wet or damp surfaces owing to cohesion between the available fluid in the PVOH nib and the wet surface.

Lastly, the foam becomes extremely soft and flexible when wetted with aqueous fluids. The high degree of flexibility of the nib material is particularly important to the instant invention. This flexibility permits a nib to be produced which

yields by gentle and controlled bending, even when extremely low forces are applied to the nib. This permits the nib to flex with a lower applied force than that which is required to significantly deform most wet frostings. This means that application of the nib to a soft food (such as wet frosting) results primarily in the bending of the nib rather than deformation of the food surface. The extreme flexibility of the nib also helps to prevent the nib itself from becoming clogged with food particles, particularly frosting.

Since the nib is able to flex during its application to soft foods, the nib bends so that the nib tip and shaft are permitted to glide over the soft food surface rather than being forced through the food. Since forces acting on the food which are generated by the nib of the instant invention are extremely low when compared to forces generated by conventional nibs, and because the relative motion of the nib shaft to the food surface is less perpendicular than that of conventional nibs, the food particles tend not to accumulate on the surface of these special nibs nearly as easily as conventional nibs. Additionally, because the forces between these nibs and the food are lower than those generated by conventional nibs, less food is driven into the pores of the nib, so nib cleaning is required, less often. Another important feature of the nib design of the instant invention is a nib which is highly elastic, that is, a nib which readily returns to its original shape after deflection. The ability of the nib to return to its original shape after contact with the substrate allows the user to use the device more readily since the nib will always return to its original rest state position. Most polyvinyl alcohol nibs

which were tested exhibited this desirable elasticity.

Open cell polyvinyl alcohol foams may be produced in which the average pore size is tightly controlled throughout the entire structure. Foams which were found to function well in the application of the instant invention possessed the following characteristics:

Porosity	88 - 92%
Average pore size	60 - 300 microns
Water absorption rate (% of PVOH mass)	1020 - 1300%
Pore size distribution	30-120 microns to 150-400 microns
30% Compressive strength (wet)	24-86 g/cm ²

A preferred PVOH foam for use in the instant invention had the following properties:

Porosity	88%
Average pore size	80 microns
Water absorption rate (% of PVOH mass)	1020%
Pore size distribution	30-120 microns
30% Compressive strength (wet)	86 g/cm ²

The nibs may be formed by casting and curing to final or near final net shape in